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**(57) Abstract:**

**PURPOSE:** To form a black body thin film pattern in an excellent circular shape having no deviation in the directivity of infrared-ray absorption by forming a hexagonal hole in a silicon single crystal piece by anisotropic etching.

**CONSTITUTION:** Both surfaces of a silicon wafer 1' are polished to 200 $\mu$ m having a <100> surface and then insulating films 9' and 9a of SiO<sub>2</sub> are formed in an oxidizable atmosphere to about 3W4 $\mu$ m. Then the insulating film 9' on the surface side is used as a base film to form 1st and 2nd thermocouple material patterns 2' and 3', intermediate metallic thin film patterns 4' and 5', and a black body thin film pattern 6'. Then silicon oxide films are formed on the top and reverse surfaces of the silicon piece 1' in a circular pattern of 1,000V2,000 $\mu$ m in diameter by etching by a chemical depositing method by using ethyl silicate and then a hole 10' is formed by anisotropic etching. The top surface side shape of the penetrating hole 10' is hexagonal because of the azimuth of the silicon surface.

